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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/183,566	10/30/1998	PAMELA R. CONTAG	PXE-002P1.US	3283

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EXAMINER

ZEMAN, ROBERT

ART UNIT	PAPER NUMBER
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1645

DATE MAILED: 05/02/2002

24

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/183,566

Applicant(s)

CONTAG ET AL.

Examiner

Robert A Zeman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-24 is/are pending in the application.
- 4a) Of the above claim(s) 19-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-8 and 13-18 is/are rejected.
- 7) ☒ Claim(s) 9-12 is/are objected to.
- 8) ☒ Claim(s) 1 and 4-24 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Prosecution Application***

The request filed on 2-13-2002 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/183,566 is acceptable and a CPA has been established. An action on the CPA follows.

The amendment and response filed on 2-13-2002 is acknowledged. Claims 1 and 4 have been amended. Claims 2 and 3 have been canceled. Claims 19-24 have been withdrawn from consideration. Claims 1 and 4-18 are currently under examination.

### ***New Claim Objections***

Claims 9 and 10-12 are objected to, as they are dependent on rejected claims. If said claims would be allowable if rewritten in independent form.

### ***Claim Rejections Withdrawn***

The rejection of claims 1-18 under 35 U.S.C. 103(a) as being unpatentable over Contag et al. (U.S. Patent 5,650,135, IDS-7) and Georgiou et al. (1997 Nature Biotechnology, Vol. 15, pages 29-34, IDS-7) in view of Kasahara et al. (Journal of Bacteriology, 1991 Vol. 173, No. 2, pages 6760-6765, IDS-7) is withdrawn. Applicant's arguments with regard to the applicability of Kasahara et al. was fully considered and found to be persuasive.

*New Grounds of Rejection*

*35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4-8 and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Contag et al. (U.S. Patent 5,650,135, IDS-7) and Georgiou et al. (1997 Nature Biotechnology, Vol. 15, pages 29-34, IDS-7).

The aforementioned claims are drawn to a biodetector consisting of a signal-converting element (transmembrane fusion protein) coupled to a reporter gene (luciferase) via a responsive element. Said biodetector may further comprise a bacterial cell.

Contag et al. disclose biocompatible compound consisting of an entity such as a bacterial cell and a light-generating moiety such as luciferase (see column 2 lines 60-61 to column 3, lines

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1-3). Contag et al further disclose that said moiety could be expressed via *in situ* synthesis in the entity (i.e. expression of a heterologous bioluminescent protein in a transformed cell or the *in situ* activatable promoter controlled expression of a bioluminescent protein. (see column 3, lines 11-14, column 4, lines 18-21 and column 7, 31-39). Contag et al. also disclose luciferase vector constructs that can be adapted for use in transforming a variety of host cells including bacteria (see column 10, 60-63). Finally, Contag et al disclose the use of antibodies and antibody fragments to confer specificity to the compound. Contag et al. differs from the claimed invention in that they do not specifically disclose the recombinant expression of the antibodies or antibody fragments on the bacterial surfaces. Georgiou et al. disclose the methods for the recombinant expression of heterologous proteins on the surface of bacteria (both gram positive and gram negative) including scFv (see page 32-33 and Table 1). Since Contag et al disclose the use of antibodies and fragments as targeting moieties (see column 3, lines 38-40), it would have been obvious to said artisan to use the heterologous scFv disclosed by Georgiou et al. in order to take advantage of the increase in specificity, diversity, and ease of production of the resulting biodetector. Additionally, by varying the scFv, one could easily create a library of biodetectors (see Georgiou et al.). Applicant's arguments, as outlined in Paper No. 22, do not address the combination of the aforementioned references since said arguments centered upon the incorporation of the reference by Kasahara et al. Applicant's arguments regarding said reference were found to be persuasive. Consequently, since it would not have been obvious to utilize the teachings of the Kasahara et al., claims 9-12 have been determined to be free of the art of record.

*Conclusion*

No claim is allowed.

Claims 1, 4-8 and 13-18 are rejected.


Claims 9-12 are objected to.

Claims 9-12 are free of the art of record and would be allowable if rewritten in independent form.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A Zeman whose telephone number is (703) 308-7991. The examiner can normally be reached on M-Th 7:30 am - 5:00 pm and Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donna Wortman can be reached on (703) 308-1032. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

  
DONNA WORTMAN  
PRIMARY EXAMINER

Robert A. Zeman  
April 30, 2002